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10/578,921	05/09/2006	Masanori Sueoka	BAN-001	3847
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Kubovcik & Kubovcik The Farragut Building, Suite 710 900 17th Street N W Washington, DC 20006				
EXAMINER				
FALASCO, LOUIS V				
ART UNIT		PAPER NUMBER		
1794				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,921

Applicant(s)

SUEOKA ET AL.

Examiner

LOUIS FALASCO

Art Unit

1794

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/86)
Paper No(s)/Mail Date 7/25/06, 3/12/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Papers Received

1. The Information Disclosure Statements filed 7/25/06, 3/12/07 are acknowledged.

Claims

2. The claims are 1-5.

Claim Rejections - 35 U.S.C. §103

Statutory Basis

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as obvious over **Nishimura et al** (US 5874519).

Nishimura et al teaches the same disclosed composition aromatic polyamides and elongating a film under the same stretch extent, though at a differing temperature level - this is evident from a comparison of **Nishimura et al** at col. 4 ln 28 - 67, col. 5 col. 9 lns 40-53 and col. 10 lns 2-11 and of the instant specification at

pg 10 [0025] – pg 12 [0034] for stabilizing the film dimensions. In **Nishimura et al** film dimensions are stabilized by matching optimal elasticity in terms of *Young's modulus* (**Nishimura et al** col. 3 lns 50-53). Similar to applicants¹, this is accomplished through control of hygroscopic and thermal shrinkage properties (**Nishimura et al** col. 3 lns 14-25, col. 10 lns 5-11).

It would be reasonable to expect film dimensions to have increased stability with decreased hygroscopic and thermal shrinkage since hygroscopic and thermal shrinkage properties have been demonstrated as effective for variables that result increased dimensional stability with changes in humidity and temperature. It would be obvious to a worker of ordinary skill decreased hygroscopic and thermal shrinkage would decrease the changes in dimensions (**Nishimura et al** col. 3 lns 25-27). **Nishimura et al** does not employ the measures for the extent of shrinkage. However shrinkage is a recognized *result* achieved with the variables *effective* to achieve the *result* taught in the art. It has been held when it would not be inventive to discover optimal ranges through routine optimization².

5. Claims 1-5 are rejected under 35 U.S.C. 103(a) as obvious over **Tsukuda et al** (US 6797381 - as translation for WO 00/18564) or the admitted state of the prior art – either one with **Ejiri et al** (US 2003/0235715) in view of **Asakura et al** (US 4645702).

¹ This is analogous to *Young's modulus* noted instantly as "MD" and "TD" .

Tsukuda et al teaches the same recording media film composition (aromatic polyamides **Tsukuda et al** col. 3 ln 2 – 47 and instant specification pg 10 [0025] – pg 12 [0034]), balancing *Young's modulus* (**Tsukuda et al** col. 4 lns 14-13) with reductions in hygroscopic (**Tsukuda et al** col. 4 lns 46-49) and thermal shrinkage (**Tsukuda et al** col. 4 lns 38-40). Alternative to the **Tsukuda et al** teachings, applicants show that in the recording media art it is known to balance hygroscopic and thermal shrinkage with *Young's modulus* for a tape stretching under strain as the *admitted state of the prior art* (at ¶[0004]" at page 1 of the specification). **Tsukuda et al** and the *admitted state of the prior art* demonstrate hygroscopic and thermal shrinkage as *result effective* variables balancing film stress and strain levels, characterized by *Young's modulus* elasticity levels. Neither **Tsukuda et al** nor the *admitted state of the prior art* show this as directly a measure of dimension stability. However, **Ejiri et al** teaches the same film composition film with similar biaxial heat stretching (e.g., **Ejiri et al** [0023-25], [0044] – *cf* [0049] at page 17 of the specification) for increasing dimensional stability through reducing thermal shrinkage (**Ejiri et al** [0052]).

It would have been obvious to one having ordinary skill in the art to adopt **Ejiri et al** heat stretching in **Tsukuda et al** or the *admitted state of the prior art* to stabilize changes dimensions. In addition, **Asakura et al** teaches reducing dimensional changes with the reduction in hydroscopic shrinking (**Asakura et al**

² In re Boesch 205 USPQ 215, "[I]t is not inventive to discover the optimum or workable ranges by routine experimentation." (Quoting from *Allen*, 220 F.2d at 456). etc.

col. 7 Ins 21-32; 8 Ins col. 14 Ins 20-22, noting prevention of dimensional changes by residual in the film) and heat annealing for reductions in thermal shrinking (**Asakura et al** col. 2 Ins 40-45 and 62-66, col. 7 Ins 28-37, col. 8 Ins 4-9, 53-55; col. 9 Ins 1-26).

- As regards claim 2 *Young's moduli* see **Tsukuda et al** col. 4 Ins 14-32; **Asakura et al** col. 13 Ins 50-60.
- As regards claim 3 *aromatic polyamide* see **Tsukuda et al** col. 3 Ins 2-50; **Ejiri et al** [0044]; **Asakura et al** col. 3 Ins 44 to col. 6 In 53.
- As regards claim 4 magnetic layer see **Tsukuda et al** col. 5 Ins 24-40; **Ejiri et al** [0050]; **Asakura et al** col. 10 Ins 10-30.
- As regards claim 5 thermal expansion and hygroscopic expansion see **Tsukuda et al** col. 3 Ins 52 to col. 4 In 32; **Ejiri et al** [0052]; **Asakura et al** col. 8 Ins 40-45.

Having shown hygroscopic and thermal shrinkage as known *result effective* variables in the art the burden shifts to applicants to demonstrate by evidence unobviousness³.

Secondary Considerations

6. Claim 5 dependent on all of claims 4, 3, 2 and 1 with all of equations "(1)" to "(7)" simultaneously conformed to have not been considered commensurate in

³ MPEP 2144.05

scope to what has been demonstrated as unobviously superior results. While applicants have demonstrated unobvious superior results however the claims are not reasonably commensurate with these results. Applicants have demonstrated an unobviously superior result for the subject matter of claim 5 dependent on all of claim 4, claim 3, and claim 2 and from base claim 1 requiring all of equations "(1)" to "(7)" relationships simultaneously satisfied however only within a more narrow band than presently claimed.

7. The results require equations (1) through (7) be conformed to simultaneously and reasonably limited for the unobvious results of no deformations over 1 mm for end points, estimation and running durability – as summarized at Table 3 instant specification page -32-. To have the probative value of these unobvious results commensurate with what has been claimed the claims should be amended incorporating all of claim 1, claim 2, claim 3 and claim 4 into claim 5, so claim 5 has all equations (1) through (7) be conformed to simultaneously.

Further:

- Equation "(1)" must be amended from [$-10 \leq \alpha MD \leq 10$] to [$-7 \leq \alpha MD \leq 6$];
- Equation "(5)" must be amended from [$8 \leq EMD \leq 20$] to [$8 \leq EMD \leq 16$];
- Equation "(7)" must be amended from [$-10 \leq \alpha' MD \leq 10$] to [$-5 \leq \alpha' MD \leq 10$];

- Equation "(9)" must be amended from $[-10 \leq \beta 'MD \leq 10]$ to $[-10 \leq \beta 'MD \leq 7]$.
- a) As regards claim 1 equation "(1)", $[-10 \leq \alpha MD \leq 10]$, the probative value of unobvious results can only be extended to $[-7 \leq \alpha MD \leq 6]$. This is evident from Example 9, Example 10 and Example 11. Examples 9-11 illustrate unobvious superior results, represented as "O", as measurable deformations less than 1 mm, represented as " Δ ", beyond $\alpha MD -7$ and $\alpha MD 6$.
- b) As regards claim 2 equation "(5)", $[8 \leq EMD \leq 20]$, the probative value of unobvious results can only be extended to $[8 \leq EMD \leq 16]$. This is evident from Example 9 before strain resulting in measurable defects more than 1 mm, represented as " Δ ", occurs beyond $8 \leq EMD \leq 16$.
- c) As regards claim 5 equation "(7)", $[-10 \leq \alpha 'MD \leq 10]$, the probative value of unobvious results can only be extended $[-5 \leq \alpha 'MD \leq 10]$. This is evident from Example 10 which illustrate unobvious superior results, represented as "O", defects measurable beyond 1+ mm outside -5.
- d) As regards claim 5 equation "(9)", $[-10 \leq \beta 'MD \leq 10]$, the probative value of unobvious results can only be extended $[-10 \leq \beta 'MD \leq 7]$. This is evident from Example 10 which illustrate unobvious superior results, represented as "O", and measurable defects beyond 1+ mm outside 7.

Reason for allowance

The following is an Examiners Reasons for allowance

Claims considered allowable would include equation "(1)" through "(7)" be conformed to simultaneously with unexpected superior results that include Equation "(1)" amended from $[-10 \leq \alpha MD \leq 10]$ to $[-7 \leq \alpha MD \leq 6]$; Equation "(5)" amended from $[8 \leq EMD \leq 20]$ to $[8 \leq EMD \leq 16]$; Equation "(7)" amended from $[-10 \leq \alpha' MD \leq 10]$ to $[-5 \leq \alpha' MD \leq 10]$; Equation "(9)" amended from $[-10 \leq \beta' MD \leq 10]$ to $[-10 \leq \beta' MD \leq 7]$.

Claim 5 would be considered allowable if equations "(1)" through "(7)" were amended as note above. Claim 5 must also include all limitations of claim 4, since unobvious results have only been shown requiring a magnetic recording medium with a magnetic recording layer and claim 4 claims a magnetic layer - the only way to make the measurements of claim 5. Further claim 5 dependant on claim 4 must include all limitations of claim 3, since unobvious results have only been shown for a magnetic recording medium with *aromatic polyamide* films. Further claim 5 dependant on claim 4 and claim 3 must include all limitations of claim 2, since unobvious results have only been shown for the *Young's moduli* in machine (longitudinal) and transverse directions and only claim 2 claims the *Young Modulus* levels.

Other References

- **Suekoa et al** (US 2001/0008714) is cited but not applied as being cumulative to **Ejiri et al** (US 2003/0235715) teaching of shrink control.
- **Handa et al** (US 6376043) is cited but not applied as teaching aromatic polyamide characterized in that the heat shrinkage ratio, in both machine and transverse direction of the film subjected to heat treatment under a condition of no tension at a slightly lower temperature (150° C) for 30 min. as opposed to 180 ° C for 30 min. for the same aromatic polyamide substrate.
- **Kato et al** (US 2001/0055699) is cited but not applied as teaching hygroscopic expansion [0095] of aromatic polyamide films in magnetic recording medium [0092], [0095] and **Noguchi et al** (2002/0102351) is cited but not applied teaching hygroscopic expansion [0115] of aromatic polyamide films in magnetic recording medium [0113], [0116].

Conclusion

The claims are 1 to 5.

- No claim has been allowed.
- Information Disclosure Statement has been received.

INQUIRES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Louis Falasco, PhD whose telephone number is (571)272-1507. The examiner can normally be reached on M-F 10:30 - 7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached at (571)272-1398. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Louis Falasco/
Examiner, Art Unit 1794

LF
06/08

/Carol Chaney/
Supervisory Patent Examiner, Art Unit 1794